

Abstract

Thermal Barrier Coating Systems and Materials

5 A ceramic material has particular utility as a thermal insulating or thermal barrier coating
on metallic substrates. The ceramic material includes gadolinia and hafnia, preferably forming
gadolinia-hafnia. This material exhibits chemical stability, thermal stability and thermal
insulating properties superior to those of currently used thermal barrier ceramics, and also
provides resistance to sintering and erosion comparable to currently used ceramics. A preferred
10 material has between about 3 - 70 mol. % hafnia, balance hafnia.